



© Steven Falk

Case study: Canvey Wick SSSI, Canvey Island

In 2005 Canvey Wick became the first brownfield site to be designated a Site of Special Scientific Interest specifically for its invertebrates, after a campaign by Buglife and local residents to protect it from development. This former oil refinery supports an outstanding invertebrate assemblage of national importance, and is extremely important for the Shrill carder bee (*Bombus sylvarum*) in the Thames Estuary. The site also supports species previously thought to be extinct, such as the Canvey Island ground beetle (*Scybalicus oblongiusculus*) and Morley weevil (*Sitona cinerascens*).

In the 1970s, the Canvey Wick site was transformed from coastal grazing marsh to a 93ha oil refinery, however, the site was decommissioned in 1973 without ever opening. The land level was raised, ditches realigned and infrastructure created. The site was covered in several metres of dredged material from the Thames, creating vast areas dominated by silt, sand and gravel. The resulting altered hydrology and low nutrient conditions have led to a complex mosaic of dynamic habitat types, with wetland features such as reedbeds, damp grassland, ditches, ponds and sallow carr, found alongside herb-rich dry grassland, sparsely vegetated gravels, sandy banks, bramble patches, and bare concrete. However, without any management for nearly 40 years, scrub encroachment and a lack of disturbance have begun to threaten the open habitats that are key to Canvey Wick's invertebrate interest.

The site supports an outstanding invertebrate assemblage, with over 1,400 species recorded, including at least 30 Red Data Book species. When the site was first surveyed, three species previously thought extinct in the UK were recorded.

Buglife habitat work undertaken

20ha of the site is now owned by the Land Trust and Buglife are working in partnership with RSPB to manage this part of the SSSI. Fine-scale habitat enhancement is central to the new master plan, based on extensive invertebrate survey data.

Key species of the site

- Bees and wasps: Shrill carder bee (*Bombus sylvarum*), Brown-banded carder bee (*Bombus humilis*), Five-banded weevil wasp (*Cerceri quinquefasciata*), ruby-tailed wasp *Hedychrum niemelai*
- Beetles: Morley weevil (*Sitona cinerascens*), Canvey Island ground beetle (*Scybalicus oblongiusculus*), Saltmarsh shortspur beetle (*Anisodactylus poeciloides*)
- Small ranunculus moth (*Hecatera dysodea*)
- Spider *Clubiona juvenis*
- Tachinid fly *Gymnosoma nitens*
- Scarce emerald damselfly (*Lestes dryas*)



Early successional vegetation around tarmac bases © Steven Falk



Saltmarsh shortspur beetle (*Anisodactylus poeciloides*) © Peter Harvey

Key features for invertebrates

- Herb-rich grassland provides forage for bees, flies and phytophagous beetles.
 - Disturbed bare ground with friable substrates including sandy banks supports ground-nesting bees and wasps, and offer basking opportunities for thermophilic species.
 - Free-draining, low nutrient early successional habitats, including sparsely vegetated gravels, support active ground beetles and spiders.
 - Scrub of varying successional stages, particularly around tarmac bases, provides valuable moth habitat and localised sheltering opportunities.
 - Ditches, reedbed, wet grassland and brackish wetlands support diverse fly, beetle and dragonfly assemblages.
- Clearance of scrub, dominated by Silver birch (*Betula pendula*) and Willows (*Salix* spp.) to reduce cover from 40% to 15% and encourage early successional habitats. Stumps will be treated to prevent regrowth, roots removed and material burnt or removed. Log and brash piles will be created for the site's reptile interest. 2 ha have been cleared to date
 - Bare ground creation by mechanically scraping off vegetation and topsoil stripping. Buglife have trialled novel methods to expose underlying substrates to allow natural regeneration. Rotational disturbance and scraping regimes will increase bare ground cover from 5% to 15%, in a successional mosaic.
 - Key sandy mounds for rare ground-nesting bees and wasps will be cleared of vegetation. Patches and vertical faces will be exposed using hand tools to remove vegetation, creating



Sparsely vegetated sand adjacent to rough grassland and scrub © Steven Falk



Shrilc carder bee (*Bombus sylvarum*) queen at Canvey Wick © Steven Falk

a mosaic of newly disturbed bare sand and silt.

- Wetlands will be enhanced by mechanically creating ephemeral pools and scrapes, and re-profiling ditch banks.

Monitoring and management

- Extensive vegetation and invertebrate surveys.
- Management will maintain bare ground cover at 15% and scrub cover at 15%, through periodic disturbance and scrub clearance, retaining drought-stressed brambles (*Rubus fruticosus* agg.) and some scrub bordering tarmac bases.
- Improved grassland management will reduce the cover of rough grassland from 20% to 10%. This will allow an increase in short sward grassland from 10% to 15%, and herb-rich grassland supporting species such as Wild carrot (*Daucus carota*) and Narrow-leaved bird's-foot trefoil (*Lotus glaber*) from 10% to 30%.
- 10% of ditches will be cleared annually to diversify successional and vegetation types.



Extensive forage including many nectar-rich non-native species © Steven Falk

buglife.org.uk 01733 201210 @buzz_dont_tweet

Buglife The Invertebrate Conservation Trust is a registered charity at
Bug House, Ham Lane, Orton Waterville, Peterborough, PE2 5UU

Registered Charity No: 1092293, Scottish Charity No: SC040004, Company No: 4132695